

Measuring CdA On-the-Road

Velocomp LLC

April, 2018

On-the-road CdA testing, August 2017

- Elite time trialist
- Athlete has previously been tested in a wind tunnel
 - Benchmark for “on the road” results
- No involvement from Velocomp except CdA beta firmware
 - Athlete purchased the test unit (Newton 5) from a local supplier
 - Athlete did his own set-up
 - Athlete selected the road
 - Athlete performed the tests
- Once the tests were completed, Velocomp was provided with ride files

Bike Tested

- Setup:

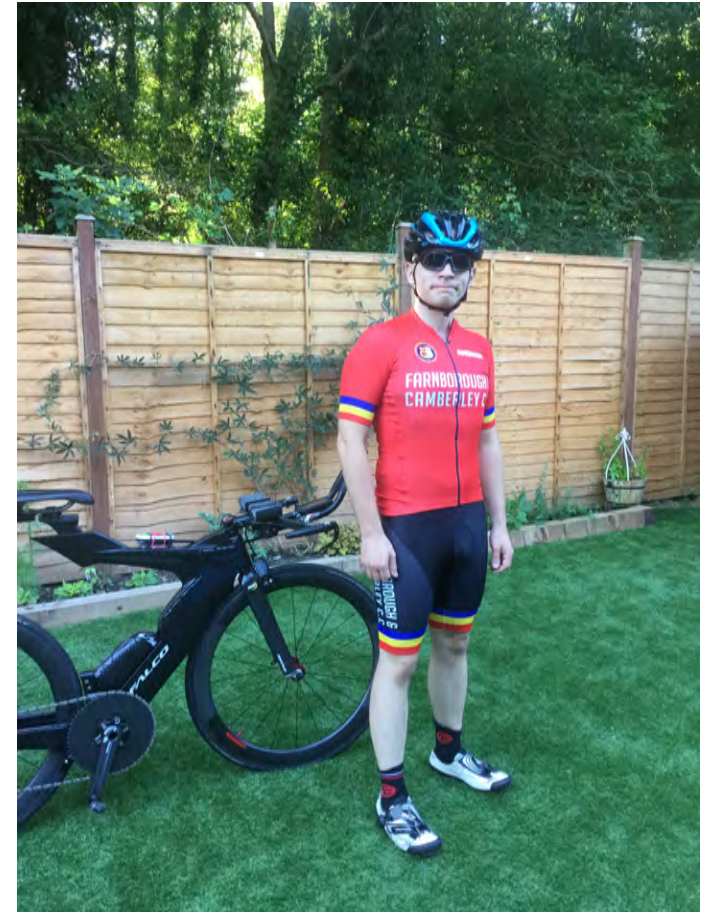
- Falco TT bike
- Wheels Flo 90 front, disc wheel rear
- Tires 90PSI, Super Premium Vittoria Corsa Speed G+ TLR
- Quarq DFPM



Copyright Velocomp LLC 2017-2018

Four different tests, measuring effects of bike gear on CdA

- Run 1: Road bike outfit
 - Bioracer jersey/shorts
 - Giro Synthe helmet
 - Bont Vaypor shoes



Copyright Velocomp LLC 2017-2018

Run 2

- Change clothing
 - Castelli BodyPaint 3.0



Copyright Velocomp LLC 2017-2018

Run 3

- Add:
 - Bont Crono shoes
 - Smart Overshoes
 - Nopinz Tripsocks



Copyright Velocomp LLC 2017-2018

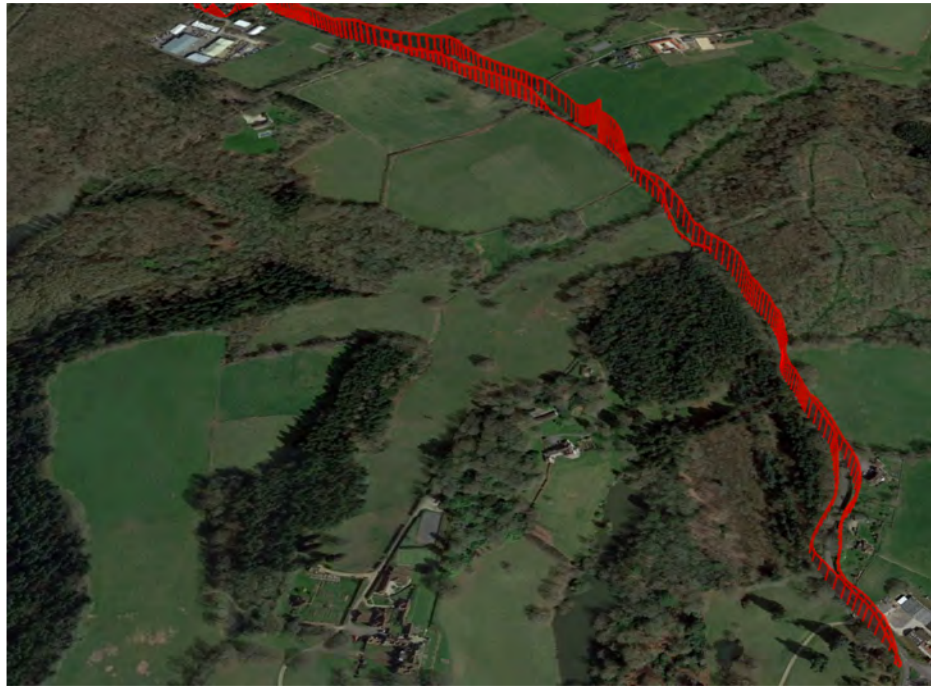
Run 4

- Add:
 - Lazer Wasp helmet



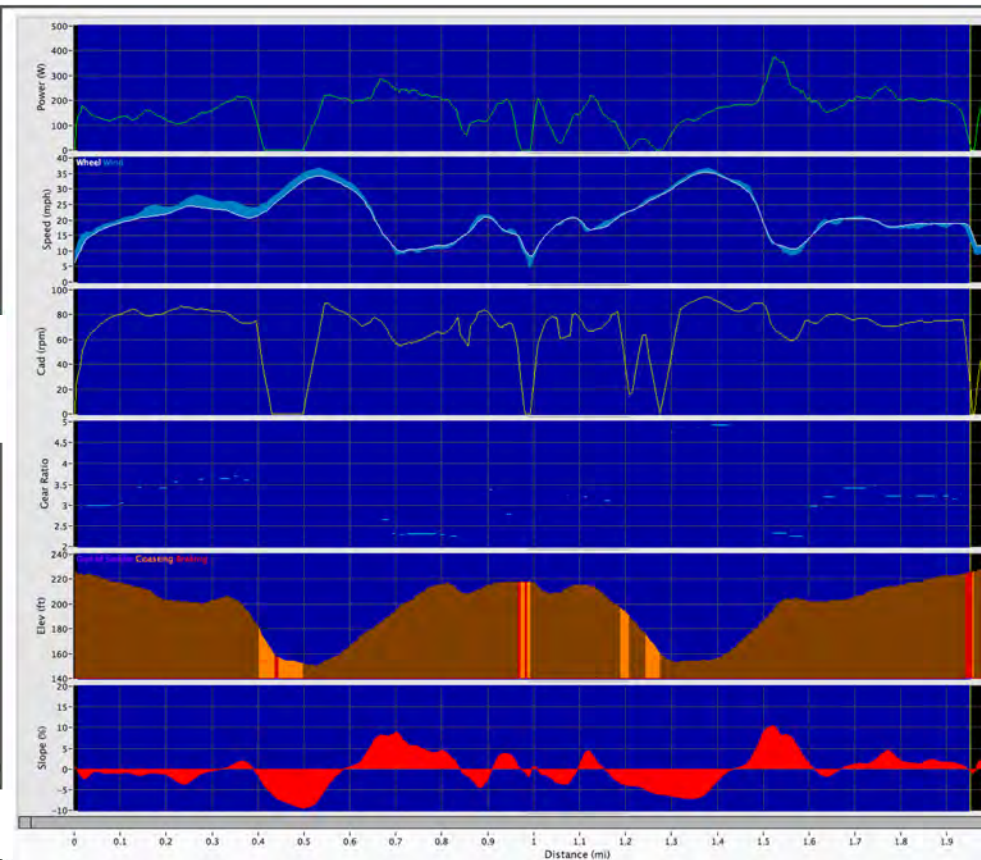
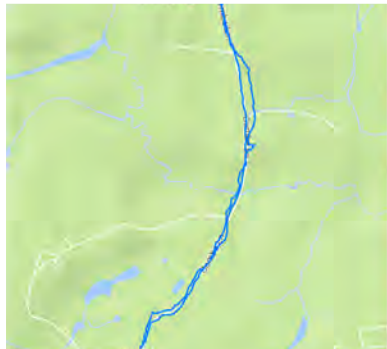
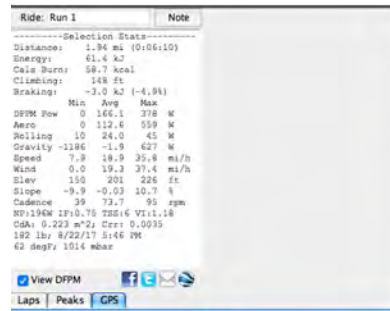
Copyright Velocomp LLC 2017-2018

Test Course: Countryside road



Copyright Velocomp LLC 2017-2018

Test Runs: 6 minutes per run, out-and-back, 1.2 miles



Copyright Velocomp LLC 2017-2018

Results:

- Run 1 (road jersey) CdA = .223
- Run 2 (BodyPaint) CdA = .205
- Run 3 (add crono shoes, tripsocks) CdA = .181
- Run 4 (add Lazer Wasp helmet) CdA = .172

Wind tunnel vs Velocomp, Run 4

- Wind tunnel
 - $CdA = .179$
- Velocomp
 - $CdA = .172$



Copyright Velocomp LLC 2017-2018

Run 4: athlete's position was more aero for on-the-road test than wind tunnel test



On-the-road CdA = .172



Wind tunnel CdA = .179

Copyright Velocomp LLC 2017-2018

In the words of the athlete

- “To my mind, this is an excellent tool. One can aero test from baseline accurately, within touching distance of multi-thousand dollar systems.”